

**A Critical Examination of the
Epistemological and Psychophysical Doctrines
of Bertrand Russell**

A DISSERTATION

**SUBMITTED TO THE BOARD OF UNIVERSITY STUDIES OF
THE JOHNS HOPKINS UNIVERSITY IN CONFORMITY
WITH THE REQUIREMENTS OF THE DEGREE
OF DOCTOR OF PHILOSOPHY**

BY

ROSS THALHEIMER

1929

**THE JOHNS HOPKINS UNIVERSITY
BALTIMORE, MARYLAND**

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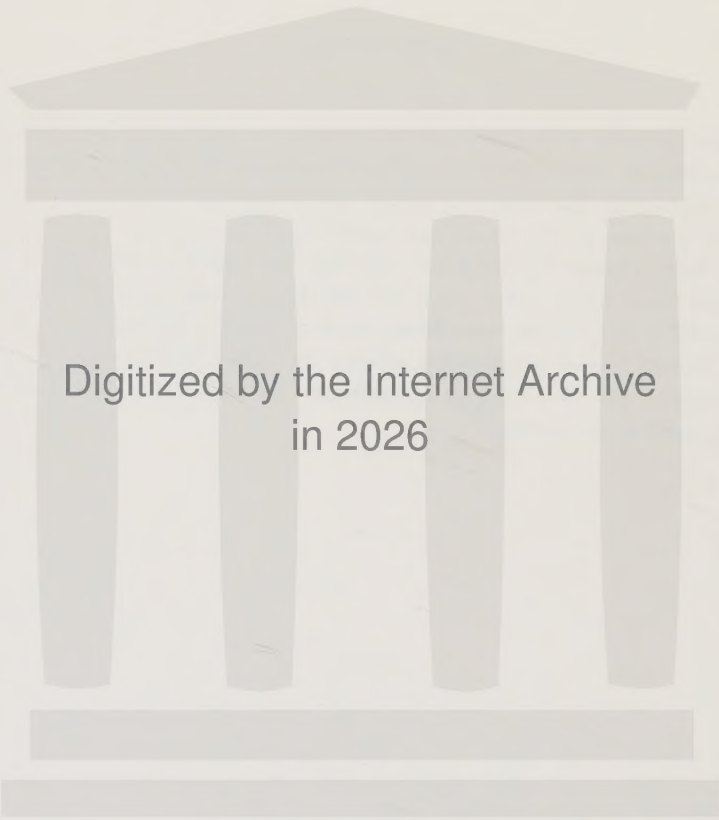


FOREWORD

The present publication is a greatly abridged version of my dissertation. Only the first part of Chapter III is here set forth in approximately the detail in which it was originally written. The other sections of the thesis are merely summarized.

I have chosen to print in full the first part of Chapter III rather than some other part of the dissertation because I have thought it the section most likely to be of general interest.

I should like to express my sincere gratitude to Professor A. O. Lovejoy. He is certainly responsible for whatever merit this examination may have.



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SUMMARY OF THE INTRODUCTION

In section I of the introduction, the precise subject-matter of the dissertation is defined. It is pointed out that I shall be concerned particularly, though not exclusively, with Russell's epistemological and psychophysical doctrines as those doctrines are successively set forth by him between the year 1895, when they first appear on the philosophical horizon, and 1927. In section II, it is explained, among other things, that I shall divide Russell's views into a "preliminary period" and "three stages" and an attempt is here made to justify these divisions. Following two other sections of an introductory character, I turn in section V to Russell's "preliminary period", a period in which there is to be found only a very incomplete epistemological and psychophysical theory. The examination of Russell's remarks on the theory of knowledge and the mind-matter problem during this period is, accordingly, brief. An attempt is made, however, to distinguish such epistemological and psychophysical theses as are here discernible—there appear to be fourteen—and to comment summarily upon each.

SUMMARY OF CHAPTER I

EPISTEMOLOGICAL AND PSYCHOPHYSICAL DUALISM (1898-1913)

In chapter I, I examine Russell's epistemological and psychophysical doctrines as those doctrines are developed by him between 1898 and 1913. After two preliminary sections—sections primarily concerned, first, with justifying the title of the chapter and, second, with explaining precisely what I shall mean by epistemological and psychophysical monism and dualism—I turn in section III to the task of expounding Russell's position. It becomes clear from this exposition that Russell's views of this period fall naturally into two groups, and the rest of the chapter is, accordingly, divided into two parts.

Part I is concerned exclusively with Russell's doctrine of acquaintance. Turning first to Russell's remarks on the *nature* of the acquaintance relation, I point out that there are three distinguishable and mutually inconsistent views of the nature of acquaintance to be found in Russell's writings. Only one of these can, of course, be true. But one of these, it is argued, *is* true, and, indeed, obviously so. Following certain minor comments on Russell's theory of the impossibility of error in acquaintance—one of which concerns Russell's failure to note that in a sense there can be no error in judgment, and another of which concerns Russell's failure to note that in a sense there can be no truth in either acquaintance or judgment—I pass on in the subsequent section to examine Russell's remarks on the *data* of acquaintance.

Turning first to his views concerning acquaintance with sense data, I point out that there are two distinguishable theses which Russell here seems called upon to defend. The first is that sense data are data, and the sole data, of sensation; the second, that sense data have certain particular properties, namely, that they (a) have location in private spaces and times, (b) are qualitatively and existentially dependent upon sensation, and (c) are non-mental. Numerous objections are raised to Russell's "proof" of these theses. In connection with the first thesis, it is, for example, pointed out that the author fails to consider the type of position represented by advocates of the Multiple Inherence and Multiple

Relation theories: as regards the second thesis, that, for example, since the author fails to distinguish private time from what I call "feeling time," his arguments to prove that sense data are located in the former are inadequate. But that the two theses are valid is not denied.

With Russell's theory of memory in these writings I am, however, in emphatic disagreement. In endeavoring to identify the memory datum with the past physical object, he seems to me badly mistaken. An attempt is accordingly made in this section to support an epistemologically dualistic theory of memory by pointing out that the memory datum and the past physical object do, in fact, possess different sets of properties. Strong exception is also taken to Russell's doctrine of acquaintance with introspective data and with the Self. As regards the latter, it is held (a) that there is no evidence to show that such a Self exists, and (b) that there is no evidence to show that one has acquaintance with such a Self. In the final section of Part I, Russell's doctrine of acquaintance with the universals is examined. Each of his arguments for the existence, or rather subsistence, of universals is considered in turn. But none of the arguments appears to the present writer, who confesses to a rigorous nominalism, to be cogent.

In Part II, I examine in turn (a) Russell's arguments for the independent existence of sense data, and his doctrine of space and time, (b) his doctrine of knowledge by description, and (c) his theory of true and false judgments.

In considering his arguments for the independent existence of physical objects, I point out that Russell is guilty of employing faulty logic. For what he does is to present two arguments, the "simplicity" argument and the "instinctive belief" argument, which can at best disprove only the validity of the doctrine of solipsism. They can at most show that *something* exists over and above Russell's momentary sense data. Yet Russell appears to assume that they show that there exist in the world independently existing physical objects having such properties as the scientist generally supposes them to have. His conclusion is held to be sound, but his "proof" of that conclusion, very inadequate. As regards his doctrine of space and time, it is objected in particular (1) that in view of the Theory of Relativity, he retains too sharp a cleavage between physical space and physical time, (2) that some of his statements concerning physical space and time are definitely

inconsistent with other propositions in the Theory of Relativity, and (3) that he fails to distinguish, as was pointed out before, private time from "feeling" time.

After turning next to Russell's doctrine of knowledge by description, a doctrine which, on the whole, appears to me sound, I examine in the last section but one of the chapter, Russell's doctrine of true and false judgments. Several objections are here raised to the correspondence theory of truth, to one form of which Russell clearly subscribes. The chief of these objections is that very frequently there is not, in fact, the correspondence, either of a qualitative or numerical kind, between the judgment, or proposition, and the fact, which it would appear there must be if the judgment, or proposition, is to be true according to the correspondence theory. Thus, a great number of judgments, or propositions, which advocates of the correspondence theory of truth would like to call true, must really be called false. In the final section of the chapter, the more important conclusions reached in the preceding sections are summarized.

SUMMARY OF CHAPTER II

EPISTEMOLOGICAL MONISM AND PSYCHOPHYSICAL DUALISM (1913-20)

In chapter II, I am concerned with Russell's "second stage" position, i. e., with the epistemological and psychophysical doctrines set forth by him between 1913 and 1920.

In the first section of this chapter, it is pointed out that the writings of the second stage reveal a philosophic bent which contrasts decidedly with that discoverable in the works of the first stage. In the first place, Russell no longer seems inclined to follow common sense as far as he can. And in the second place, he no longer seems inclined to *start* with the beliefs of common sense. Instead, the data which he now regards as having greatest certainty are, as is noted in section II, objects or facts of sense, the general truths of logic, and certain facts of memory and introspection. These data (called "hard" data) are the materials out of which he wishes to "construct" the universe. As is shown at various subsequent points in the chapter, however, Russell's "construction" of the universe presupposes many more "hard" data than the few he seems to recognize. After expounding in section III Russell's general philosophical position at this time, I turn in the following sections of the chapter to a critical analysis of that position, raising in each of the first four sections objections applicable to one particular aspect of his position, in the final section of the chapter, objections of a general nature.

In section IV, I deal with Russell's theory of the nature of acquaintance. As this theory bears a very close resemblance to his earlier doctrine of acquaintance, the reader is referred to many of the criticisms raised in the preceding chapter. It is observed in this section that both in supposing that other people have data and in supposing that other people's sensations are analyzable into "act" and content, Russell has already gone beyond his "hard" data. Russell seems aware of this only as regards the first supposition. In sections V and VI, an analysis is made of Russell's doctrine of the independent existence of sense data. In section V, I consider the cogency of Russell's arguments, in section VI, the validity of his conclusion. Russell appears to offer two arguments

to prove the independent existence of sense data, one, that sense data and sensations (contents and "acts") are introspectively distinguishable, the other, that sense data are physiologically, not psychologically, subjective. Each of these arguments is found to be extremely faulty. It is pointed out with respect to the former that entities which are introspectively distinguishable may or may not be existentially separable; it is pointed out with respect to the latter, that any semblance of force which it may have rests upon a definite confusion of ideas. It is further shown that Russell postulates the independent existence of four distinct classes of sense data, whereas his argument can at most prove the independent existence of two of the classes of sense data. In section VI, in which I consider the validity of Russell's conclusion, it is pointed out that Russell is committed to the false proposition that an infinite number of finite "views" can occupy a finite region of physical (or perspective) space. In section VII, Russell's doctrine of private and perspective space and time is examined. Not only is Russell open here to the main objections raised against the doctrine of space and time considered in the previous chapter, but to a number of others. Among these new objections is the objection that since private spaces and times, as defined by Russell, require perceiving organisms, the thesis that unperceived perspectives have private spaces and times is plainly false. In the final section of the chapter, certain criticisms of a general nature are raised.

CHAPTER III

EPISTEMOLOGICAL AND PSYCHOPHYSICAL MONISM ¹ (1920-1927)

I. *Introduction.*

From occupying an altogether unimportant place in Russell's writings, the problems of "psychophysics" come, in the course of time, to assume a definitely major rôle. And running parallel to this change in Russell's interest is his increasing suspicion that the mind-matter dualism may not be so valid as he had supposed. During what I have called the first stage, the mind-matter problem occupies, in his writings, a position of little prominence, and the duality of mind and matter is, on the whole, accepted with comparatively little hesitation. But with the adoption in the second stage of the view that physical objects are collections of sense data or aspects, one feels that Russell has begun to give serious attention to psychophysical problems, and one strongly suspects that he does not believe the duality of mind and matter to be so ultimate as he had previously assumed it to be. Even here, however, psychophysical problems remain in the background, and physical objects, though they have become decidedly unlike the entities common sense generally supposes them to be, are still called "physical". In the third stage, however, the mind-matter problem comes frankly to the fore, and Russell now enthusiastically proclaims that the mind-matter dualism is *not* valid, that mind and matter are, rather, composed of something which is, to use Russell's words, "more primitive than either".²

Russell's theory of "neutral monism", for that is the name he gives it, has, of course, its historical prototypes. It is, in its main outlines, not a doctrine which found its first expression in Russell. If one interprets the terms "neutral monism" somewhat generally, one may, perhaps, go at least so far back as Spinoza, but in any case one may find a position of this type defended in some of the

¹ As I have pointed out in Chapter I, I have given each chapter the heading corresponding to the name which I believe *Russell* would give to the position therein considered.

² *The Analysis of Mind*, p. 10. The page references in this chapter are, unless otherwise stated, to this volume.

works of Ernst Mach and William James, not to mention the writings of some of the American neo-realists.

In what follows, however, it will not be my purpose to point out the historical affinities of Russell's doctrine. Nor, again, shall I attempt to suggest its proper historical setting. Neither shall I endeavor to trace the evolution of the doctrine in the mind of its present exponent. I shall, rather, deal exclusively with Russell's theory itself.³

It is Russell's primary endeavor in the third stage to show, as I have already said, that mind and matter are not the distinct entities they have generally been supposed to be, but that they are built up, rather, out of something "more primitive than either". This more "primitive" something is, Russell believes, sensation. He confesses that in the "mental" realm there are entities which are *not* sensations, namely, images. But images differ from sensations, he argues, not in their "intrinsic nature" but only in so far as they obey different causal laws.⁴

This attempt to overcome psychophysical dualism proceeds, so to speak, from two ends. He endeavors to show not only that matter is less "material", but also that mind is less "mental", than most persons have believed them to be. Let us turn to the first half of this process first.

II. *The Neutralization of Matter*

(a) *Exposition.* It will be plain to any one who has followed the development of Russell's philosophy, that in his attempt to neutralize matter, he borrows heavily from the theory of matter examined in the previous chapter. Continuing to reject the causal theory of perception, he again conceives of physical objects in terms of certain sets of "effects". And this conception of matter becomes the corner-stone of his new metaphysics.

But though the present theory of matter and the earlier theory are in many respects alike, there are, on the other hand, certain points of difference between the two theories. For one thing, Russell does not insist so strongly now that there are appearances,

³ As Russell's epistemological position is essentially the same as that examined in the previous chapter, I shall devote most of my attention in this chapter to his psychophysical doctrines.

⁴ Pp. 137-56.

or "views," at places not occupied by sentient organisms. He seems at times content to assert merely that there are "happenings" in these places.⁵ Again, the central causal object, which maintains a lingering existence in the previous theory, now seems definitely to have disappeared.⁶

It will, I think, be helpful to a better understanding of Russell's position to quote here two passages in which that position is set forth. In the first of these, Russell explains his theory of the nature of a physical object, in the second, he suggests the way in which this view of matter is to be fitted into a neutral monistic metaphysics. Following these quotations, I shall proceed to an analysis of Russell's position.

The first of these passages runs as follows:

A piece of matter, as it is known empirically, is not a single existing thing, but a system of existing things. When several people simultaneously see the same table, they all see something different; therefore "the" table, which they are supposed all to see, must be either an hypothesis or a construction. "The" table is to be neutral as between different observers: it does not favour the aspect seen by one man at the expense of that seen by another. It was natural, though to my mind mistaken, to regard the "real" table as the common cause of all the appearances which the table presents (as we say) to different observers. But why should we suppose that there is some one common cause of all these appearances? As we have just seen, the notion of "cause" is not so reliable as to allow us to infer the existence of something that, by its very nature, can never be observed. . . .

It may be said: If there is no single existent which is the source of all these "aspects", how are they collected together? The answer is simple: Just as they would be if there were such a single existent. The supposed "real" table underlying its appearances is, in any case, not itself perceived, but inferred, and the question whether such-and-such a particular is an "aspect" of this table is only to be settled by the connection of the particular in question with the one or more particulars by which the table

⁵ See, e. g., pp. 99-100, 133-5, also *Contemporary British Philosophy*, vol. 1, pp. 380-1.

⁶ There are still other differences. E. g., it is our "sensations", not our "sense data", that are now said to be "parts" of physical objects, tho' it is true Russell does not mean by the term "sensations" what he formerly meant by that term. This change results from his coming to regard as invalid the division of the sensory experience into "act" and content. (See lecture 1 of *The Analysis of Mind*.) Thus, the objections which were raised in chapter I to this part of his analysis are not relevant here.

is defined. That is to say, even if we assume a "real" table, the particulars which are its aspects have to be collected together by their relations to each other, not to it, since it is merely inferred from them. We have only, therefore, to notice how they are collected together, and we can then keep the collection without assuming any "real" table as distinct from the collection. When different people see what they call the same table, they see things which are not exactly the same, owing to differences of points of view, but which are sufficiently alike to be described in the same words, so long as no great accuracy or minuteness is sought. These closely similar particulars are collected together by their similarity primarily and, more correctly, by the fact that they are related to each other approximately according to the laws of perspective and of reflection and diffraction of light. I suggest, as a first approximation, that these particulars, together with such correlated others as are unperceived, jointly *are* the table; and that a similar definition applies to all physical objects.⁷

How this theory of the nature of a physical object is fitted into Russell's neutral monism is explained in the following passage:

When I look at a star, my sensation is:

- (1) A member of the group of particulars which is the star, and which is associated with the place where the star is;
- (2) A member of the group of particulars which is my biography, and which is associated with the place where I am.

The result is that every particular of the kind relevant to physics is associated with *two* places; e. g., my sensation of the star is associated with the place where I am and with the place where the star is. This dualism has nothing to do with any "mind" that I may be supposed to possess; it exists in exactly the same sense if I am replaced by a photographic plate. We may call the two places the active and passive places respectively. Thus in the case of a perception or photograph of a star, the active place is the place where the star is, while the passive place is the place where the percipient or photographic plate is.

We can thus, without departing from physics, collect together all the particulars actively at a given place, or all the particulars passively at a given place. In our own case, the one group is our body (or our brain), while the other is our mind, in so far as it consists of perceptions. In the case of the photographic plate, the first group is the plate as dealt with by physics, the second, the aspect of the heavens which it photographs. . . . Thus what may be called subjectivity in the point of view is not a distinctive peculiarity of mind; it is present just as much in the photographic plate. And the photographic plate has its biography as well as its "matter". But this biography is an affair of physics, and has none of the peculiar characteristics by which "mental" phenomena are distinguished, with the sole exception of subjectivity.⁸

⁷ Pp. 97-99.

⁸ Pp. 129-31.

These two quotations together present a fairly clear account, I think, of Russell's attempt to neutralize matter. It is an attempt resting primarily, it is plain, upon an interpretation of matter in terms of sensations.

I turn now to an examination of this theory.

(b) *Criticism.* (1) When Russell sets forth in the first of the two passages quoted above his "preliminary definition" of a physical object, I think it is evident that he conceives himself to be laying down a proposition having existential import. And I think it is also apparent that he conceives himself to be laying down propositions having existential import when he sets forth his other definitions of a physical object.⁹

Now the particular existential proposition which in general¹⁰ Russell at first glance certainly *seems* to be laying down when he sets forth a definition of a physical object is the proposition: there exist in the external world such physical objects, and *only* such physical objects, as are here defined. But I think if one places this interpretation upon his statements, one is supposing Russell to maintain something which he does not really wish to maintain.

I say this, in the first place, because of the fact that Russell almost invariably defines a physical object solely in terms of *visual* particulars and because I do not believe that Russell really wishes to maintain that there exist in the external world visual particulars, and *only* visual particulars. I do not believe that Russell really wishes to maintain that there exist in the external world visual particulars, and *only* visual particulars, in part because, in replying later to an objection urged by Broad, to the effect (according to Russell) that his "theory is at best suitable only to visual objects, not to objects known by other senses", he writes ". . . I do not admit that the theory which I have suggested is in any way inapplicable to the other senses".¹¹ It is true that Russell's statement

⁹ As, e. g., when, on p. 107, he defines a physical object in terms of a "limiting set of appearances, or when, on p. 101, he defines a physical object in terms of "those correlated particulars which would normally be regarded as its appearances or effects in different places".

¹⁰ I except, for example, the definition given on p. 107.

¹¹ *The Analysis of Matter*, p. 260. Incidentally, Russell has, I think, somewhat misunderstood Broad's objection. For Broad seems to assert merely (1) that Russell has *considered* only the optical constituents of physical objects, and (2) that he (Broad) cannot at all *understand* what

that his theory is *applicable* to senses other than sight is not exactly equivalent to the assertion that Russell *wishes* (or *wished*) his theory to apply to the other senses, but I think this latter proposition is very strongly suggested by the former. And I do not believe that Russell really wishes to maintain that there exist in the external world visual particulars, and *only* visual particulars, in part because there are, in fact, very definite references to non-visual particulars. In one place, for example, he writes: "The stuff of the world, so far as we have experience of it, consists, on the view that I am advocating, of innumerable transient particulars such as occur in seeing, hearing, etc., together with images more or less resembling these . . ." ¹² Moreover, if Russell *were* maintaining that there exist in the external world only visual particulars, he would be maintaining a proposition which, even if true, contributes nothing toward "neutralizing" tactual, auditory, etc., particulars. In fact, if this proposition were true, Russell's desire to establish his "neutral monism", would seem to be frustrated at the outset, for there would be two radically different classes of sensory particulars in the world, visual particulars and non-visual particulars.

And I say that Russell, when he sets forth a definition of a physical object, does not really wish to lay down the proposition that there exist in the external world such physical objects, and *only* such physical objects, as are here defined, in the second place, because certain particulars which, according to some of his definitions would constitute "parts" of a physical object, according to some of his other definitions would not constitute "parts" of a physical object, and because I do not believe that Russell really wishes to assert the contradictory proposition that there exist in the external world certain particulars which do not exist in the external world. I think, therefore, one can justly accuse Russell here only of a considerable carelessness of expression.

If Russell, then, in setting forth a definition of a physical object, does not really wish to lay down the existential proposition that there exist in the external world such physical objects, and *only* such physical objects, as are defined, what existential proposition

Russell means "if he expects to work all kinds of *sensa* . . . into such a scheme". (*Scientific Thought*, p. 533) Broad does not attempt to *deny* that non-visual sensory particulars can be adapted to Russell's scheme.

¹² P. 143. See also p. 101.

does he wish to lay down? I think that if one supposes him to be asserting that there exist in the external world (a) physical objects of the sort defined in the first of the two passages quoted above, but physical objects which include tactual, auditory, etc., particulars as well as visual particulars, and (b) *only* such physical objects, one will probably not be misinterpreting him.

(2) I turn now to two of the major objections which have been urged against Russell's position by Professor Strong. The second of these objections, though it is relevant only to one of the four theories of the nature of unsensed visual particulars which can, I think, be found in Russell's writings, seems to me more important than the first.¹³

Professor Strong writes:

There is a game played in England, of which I regret to say I have no personal experience, called cricket, in which the principal event is, I think, the batting of a ball. Let us take this event, happening at twelve o'clock on Thursday, as our example. It breaks up, on Mr. Russell's theory, into a great number of perspectives, partly in (or at least closely connected with) the bodies of the players and the spectators, and partly in the air. Now each and every one of these perspectives is 'late' by the time required for the light rays to pass from the batsman's bat to the eyes of the spectators or to the points in the air. They therefore all happen after twelve o'clock. The paradox, then, is that a multitude of events, all happening after twelve o'clock, should be the constituents of an event happening at twelve o'clock.¹⁴

In replying to this objection of Professor Strong's, Russell remarks that since the temporal relation between two events is, as is shown in the Special Theory of Relativity, variable, "one need not . . . treat the time-order of events with any undue respect."¹⁵ This answer is, of course, altogether beside the point. For Professor Strong's objection is not that according to Russell's theory two particulars are assumed *not* to have variable temporal relations, but the totally different objection that according to Russell's theory

¹³ As was noted in chapter II, these two objections, as well as two objections of Professor Lovejoy's to which I shall refer, are equally relevant, in my opinion, to the theory of Russell's examined in the preceding chapter. I have considered them in this chapter, however, because they are offered as objections to Russell's present position.

¹⁴ *Mind*, 1922, p. 310.

¹⁵ *Physics and Perception*, *Mind*, 1922, p. 484.

"a multitude of events, all happening after twelve o'clock" are "the constituents of an event happening at twelve o'clock".

Though Russell's answer to this objection seems to me irrelevant, the objection is not, I think, really serious. For Professor Strong has pointed out, after all, only a *verbal* difficulty in Russell's position. He has pointed out, that is to say, merely that one of the statements which Russell defends is, when the words composing that statement are given their *ordinary* meanings, false or absurd. He has not shown that Russell's statement, when the words composing that statement are given the meanings which *Russell* gives them, is false or absurd. And clearly when Russell agrees¹⁶ that "a multitude of events, all happening after twelve o'clock" are "the constituents of an event happening at twelve o'clock", the term "constituents" is used in a very unusual sense.

Russell might, I think, easily have avoided the semblance of paradox if, giving the term "constituents" its more usual meaning, he had held, not that "a multitude of events, all happening after twelve o'clock" are "the constituents of an event happening at twelve o'clock", but that the "event happening at twelve o'clock" is the "constituent" of the "event happening at twelve o'clock". He might have held this, it is evident, without in any way modifying his position.

(3) The second, and more important, objection of Professor Strong's which I have in mind is the following:

We shall perhaps not misrepresent him (Russell) if we say that, at the points of space which are reached by light from an object, there is something, of the nature of sensation, but as unlike what we see as the physical process occurring there is unlike the process occurring in the brain. Let us, for convenience, describe this something as a "sub-sensation". Now, I have a difficulty with the notion that a sub-sensation is a perspective. The formation of a perspective seems to be impossible without a lens to draw the light-rays coming from each point of an object together into a corresponding point on a retina or plate, thus forming an image. In discussing sub-sensations, Mr. Russell has mentioned the plate, but he has not mentioned the lens; yet without it, *all* the points of the object (i. e., on the surface of it) would send light-rays to *each* point of the plate, and all the light-rays would be confused together. Indeed, when we consider that there are light-rays entering that point from all quarters of the heavens, it is evident that, apart from such a process of analysis

¹⁶ *Physics and Perception*, *Mind*, 1922, p. 478.

as the lens permits, what exists there is only a synthesis of effects, and not anything like the stars from which the rays proceeded.¹⁷

In replying to this particular objection of Professor Strong's, Russell seems to take the position that Professor Strong has pointed out only what Russell himself has admitted, that Professor Strong has not, therefore, shown that he has been guilty of an oversight. "He (Strong) argues that, apart from something like a lens, 'what exists there is only a synthesis of effects, and not anything like the stars from which the rays proceeded.' Up to a point, this is true, and it accounts for the vagueness of perception. I emphasized this point in *Analysis of Mind*, pp. 135-136."¹⁸ And it must be admitted that *if* Russell holds (as he here indicates that he holds) that the visual sub-sensations of a given object are extremely confused perspectives bearing little resemblance to the visual sensations of that object, Professor Strong has not, of course, brought a valid objection against Russell's theory. He has supposed Russell to deny something, namely, that visual sub-sensations are extremely confused perspectives, which Russell does *not* deny. (Though Russell, if he takes *this* position concerning visual sub-sensations, is not open to Professor *Strong's* objection, he is open to an equally serious objection which I shall point out later.¹⁹)

But there is reason for supposing that Russell sometimes conceives of the visual sub-sensations of a given object, not as confused "views" differing markedly from the visual sensations of that object, but as well-defined views differing but slightly from the visual sensations of that object. In the same article in which the above quoted reply appears, Russell writes: "I think that when I see (say) a penny, what I perceive is one member of the system of particulars which is the momentary penny, that it is that member which is situated (according to one meaning of 'situation') in a certain part of my brain. I think that, very near this part of my brain there are closely similar unperceived particulars which are other members of the momentary penny; there is no solution of continuity in passing from what I perceive to the out-

¹⁷ *Mind*, 1922, p. 309.

¹⁸ *Physics and Perception*, *Mind*, 1922, p. 484.

¹⁹ See pp. 24-25.

side particulars dealt with by physics".²⁰ And several passages in *The Analysis of Mind* testify to the same point of view.²¹ Certainly against *this* position, Professor Strong's criticism is relevant and decidedly cogent.

I think there is evidence in Russell's writings, however, for still other interpretations of his theory of visual sub-sensations. Sometimes, for example, he writes, not as though he regards visual sub-sensations as confused perspectives dissimilar to visual sensations, and not as though he regards them as well-defined perspectives similar to visual sensations, but rather as though he conceives them to be light waves—light waves having just the sort of properties the physicist supposes them to have. In the passage quoted below, it is clear that this position is taken by Russell.

Consider a certain star, and suppose for the moment that its size is negligible. That is to say, we will regard it as, for practical purposes, a luminous point. Let us further suppose that it exists only for a very brief time, say a second. Then, according to physics, what happens is that a spherical wave of light travels outward from the star through space, just as, when you drop a stone into a stagnant pond, ripples travel outward from the place where the stone hit the water. The wave of light travels with a certain very nearly constant velocity, roughly 300,000 kilometers per second. This velocity may be ascertained by sending a flash of light to a mirror, and observing how long it takes before the reflected flash reaches you, just as the velocity of sound may be ascertained by means of an echo.²²

But if Russell takes this position concerning the nature of visual sub-sensations, it is apparent that, though he avoids Professor Strong's above mentioned criticism, he is open to a different, and perhaps more serious, objection. For if *this* is his theory, he has failed completely to accomplish the chief task which he sets out to accomplish, the task, namely, of interpreting the external world in terms of sensations alone. In this case, the external world will consist, not of sensations alone, but at least of light waves as well as of sensations.

In the sentence immediately following the passage just quoted, a fourth theory of the nature of visual sub-sensations seems to be

²⁰ *Physics and Perception, Mind*, 1922, p. 483.

²¹ See, for example, pp. 108 and 125.

²² Pp. 133-4. See also pp. 99-100 and 135 and *Contemporary British Philosophy*, vol. 1, pp. 380-1.

suggested. Here Russell seems to try to combine the view that visual sub-sensations are light waves with the view that the intrinsic nature of these (or other?) sub-sensations cannot be known.

What it is that happens when a wave of light reaches a given place we cannot tell, except in the sole case when the place in question is a brain connected with an eye which is turned in the right direction. In this one very special case we know what happens: we have the sensation called "seeing the star". In all other cases, though we know (more or less hypothetically) some of the abstract properties of the appearance of the star, we do not know the appearance itself.²³

But, of course, this view, in that it assumes the existence of light waves, is at least open to the objection raised in the preceding paragraph. So long, that is, as Russell holds that there are light waves, he has not interpreted the external world in terms of sensations alone.

(4) There are two interesting objections which have been urged by Professor Lovejoy which should, I think, be mentioned. Each appears to me to have a certain amount of force, though not the full force which Professor Lovejoy supposes it to have.

Professor Lovejoy endeavors to show that, in setting forth his argument, Russell constantly makes use of concepts which are definitely inconsistent with his position. And, he adds, "it is not apparent that the argument as a whole could proceed without the aid of these notions incongruous with the author's professed reasoning". Professor Lovejoy continues:

We find him, for example, explaining illusions and 'irregular appearances' as 'due to the distorting effects of the medium intervening between the object' and the place where the illusory appearance occurs, and observing that 'as we approach nearer to the object' these effects grow less. But such an explanation is obviously inconsistent in more than one way with the proposed definition of a 'physical object', for (a) if that definition is accepted, we can no longer speak of the 'place where the object is'. It is, or rather its 'parts' are, in innumerable places. (b) Consequently, no one 'appearance' can be 'nearer to the object' than another. If mankind were equally, or even promiscuously, scattered through space, we should hardly speak of one man as 'nearer to the human race' than another. (c) For like reasons, there can be no 'intervening medium'. And (d) if there were, it is difficult to see how it could, on Mr. Russell's principles, have any 'distorting effects'. For if 'the notion of *cause* is not so reliable' that we are entitled to use it to infer

²³ P. 134.

the existence of a 'central' object as a cause of the appearance and of the similarity of the appearances, how can it be used to prove the existence of a 'distorting medium' as a cause of the *difference* in the appearances? ²⁴

I think it is clear that in the last sentence of the above quotation, Professor Lovejoy points out a definite, and not unimportant, fallacy in Russell's argument. Russell, in inferring the existence of a distorting medium and in refusing to infer the existence of a central causal object, is certainly guilty of an inconsistency. I do not believe, however, that the first three comments of Professor Lovejoy's are nearly so serious as he seems to believe.

As for the first criticism, that if one accepts Russell's definition of a physical object, one can no longer speak of the "place where the object is", this is certainly true if one defines "place" in a particular way—if one means by it, that is, "a small place". But I do not see that merely because one cannot truly say of Russell's "physical object" that it is in a "place", in this particular sense of the term, his position is in any way untenable.²⁵

The second and third of Professor Lovejoy's comments seem to me likewise not to be serious. As for the first of these two criticisms, I agree with Professor Lovejoy that it is nonsense to assert that one appearance is nearer to the collection of appearances of which it is a member than is another member of that collection. And Russell, if one interprets him in one particular way, does assert, I think, just this meaningless proposition. (Further—though this is very uncertain—he may really have had in mind this meaningless proposition.) But at least he might easily have avoided asserting this meaningless proposition, and without in any way modifying his position, by substituting for the term "object",

²⁴ *The Independent and Weekly Review*, Nov. 26, 1921, p. 251.

²⁵ Professor Lovejoy is, however, perhaps raising the different objection that though Russell's physical object is really scattered in space, he inconsistently talks as though it is not so scattered, as though it is, instead, in a very small region of space, in particular, in the region of space (place) common sense generally supposes it to be. I do not think one can say with certainty, however, that Russell is guilty of an *inconsistency* here. I think it quite possible, that is, that he merely uses the term "place" in two different ways, such that according to one of the meanings of the term, an object is at the *center* of the collection of particulars composing the object, whereas according to the other, it is scattered wherever one of the particulars composing it happens to be.

the phrase "center of the object", by saying, instead, that one appearance is nearer to the *center* of the collection of appearances of which it is a member than is another member of that collection. This verbal change would have obviated the objection.

As for the second of these two criticisms, it too might have been avoided by a slight verbal change and, in fact, by making just the substitution of terms suggested above. For though the statement that there is an intervening medium between the "object" and the place where the illusory appearance occurs is likewise a meaningless proposition, the statement that there is an intervening medium between the "center of the object" and the place where the illusory appearance occurs, is *not* a meaningless proposition. And it is a proposition perfectly consistent, moreover, with Russell's general position.

These last two comments indicate, however, that Russell is at least guilty of expressing himself at times quite carelessly. And the first of the criticisms included in the passage quoted above, points out, as I have said, a very definite inconsistency in Russell's argument.

(5) The other objection of Professor Lovejoy's concerns the "hollowness" of Russell's physical object. It is asserted that since Russell holds that there are no particulars at the center of the collection of particulars comprising a physical object, a physical object for him exists everywhere except at the place at which it has generally been supposed to exist. As Professor Lovejoy writes, "Parts of it" (my table) "exist everywhere *except* (apparently) in the middle of my room".²⁶ But if physical objects are "hollow", numerous difficulties, of course, immediately arise.²⁷

²⁶ *The Independent and Weekly Review*, Nov. 26, 1921, p. 251.

²⁷ Some of these are pointed out by Professor Strong. "What first strikes one in this theory", he writes, "is the curious reversal of the spatial position of objects which it seems to involve—objects being apparently everywhere except in the place where we see and feel them. Thus, as you approach a table, you get a better and better perspective of it until you are quite near, and then confused perspectives, and after that there is nothing. (If the perspectives were 'views' of the table, not constituents of it, it would be quite intelligible that we should get them only from points outside itself.) But we must remember that, on Mr. Russell's theory, space has no existence except as an internal character of the perspectives; the continuous 'public' space, in which common sense supposes all objects to exist, is only a mental construction. So

How is one to account, for example, for "interference," for the fact, for example, that when one places a book in front of one's eyes, the object behind that book becomes invisible?

I thoroughly agree with Professor Lovejoy that *if* Russell conceives of physical objects as "hollow", a whole host of curious, if not fatal, consequences result. And I think there is certainly some evidence for supposing that Russell does wish to maintain that physical objects are "hollow". In the article of Russell's from which I have already quoted, he seems very clearly to take the position that physical objects are "hollow". For here, in replying to some criticisms of Professor Strong's, among them, the criticism that, according to Russell's theory, objects are "apparently everywhere except in the place where we see and feel them", he writes, "it is true that I maintain these propositions . . ." ²⁸ But there is also some justification, I think, for the opposite interpretation of Russell's theory. There is also reason for supposing that he does not wish to maintain that physical objects are "hollow".

I say this primarily because, as I have argued earlier, there is reason for supposing ²⁹ that Russell wishes to hold that physical objects include tactual, auditory, etc., particulars as *well* as visual ones and because it seems probable that he would wish to regard some of these non-visual sensory particulars, for example, the tactual ones, as situated at the *centers* of the groups of particulars to which they belong, that is, as situated at the places in public space at which common sense supposes them to be.³⁰ For to

that what I have been saying is not that there is a real place with no perspectives in it, but only that no perspectives exist which are views of the table from that place. It is not the less a paradox that light should have to proceed from a place, in which there is no constituent of the object, as a condition of the arising of a perspective in it, and yet that the place (and, I suppose, the light too, with its velocity) should have no existence apart from this or some other perspective." (*Mind*, 1922, p. 310.)

²⁸ Physics and Perception, *Mind*, 1922, p. 478. See also the passages immediately following the one here quoted.

²⁹ Pp. 14-15 of this chapter.

³⁰ I say this also because it does not seem perfectly clear from Russell's other writings of this period that he wishes to maintain that *visual* particulars are not at the centers of collections of particulars.

maintain that tactual particulars, say, the tactual particulars which are "parts" of my desk, are scattered throughout physical space, in the manner in which Russell supposes visual particulars to be scattered, would be to maintain a proposition which is hardly defensible, since no tactual particulars of my desk can be experienced at places other than the place at which my desk is commonly said to be located. If *this* is the correct interpretation of Russell's theory, Russell's physical objects are, of course, *not* "hollow" and Professor Lovejoy's comments are irrelevant. Yet there are other objections which may be urged against Russell's position.

(6) It was pointed out in considering the second of Professor Strong's two objections, that Russell seems to interpret visual sub-sensations in four different ways. Sometimes he seems to suppose that visual sub-sensations are extremely confused "views", sometimes, that they are fairly well-defined "views", sometimes, that they are not "views" at all but light waves, and sometimes he seems to combine the theory that they are light waves with the theory that the intrinsic nature of these (or other?) visual sub-sensations cannot be known. If he takes either the third or fourth position concerning visual sub-sensations, he fails at the very beginning, it was asserted, to accomplish the chief task he sets out to accomplish, the task, namely, of interpreting the external world in terms of sensations alone. If he takes the second position, he is open to Professor Strong's objection that he has forgotten that a well-defined "view" is impossible without a lens. But what objection may be urged against Russell if he supposes visual sub-sensations to be extremely confused "views"? If he holds that visual sensations are extremely confused "views"—in fact, if he asserts that they are well-defined "views" or light waves—he is, *provided* he maintains that the physical objects of which these particulars are members are "hollow", open to the objection of Professor Lovejoy's which we have just considered. But he is also open to other objections. One of these objections, applicable also to the theory that visual sub-sensations are well-defined perspectives, was pointed out in the previous chapter.³¹ Let me explain again, however, what this objection is.

If Russell holds that visual sub-sensations are "views", either confused or well-defined, he is, in consequence of his other doctrines,

³¹ Section VI.

committed to the false proposition that an infinite number of entities each of a finite size can be fitted into a finite region of physical space. I think it will be granted that from any region of space an infinite number of "views" of the world are, theoretically, obtainable. If, let us say, I face a camera in one direction and then in another, it is clear that I must have moved the camera through an infinite number of intermediate positions. It will, of course, be impossible in *practice* for me to take a photograph of the universe from each of these infinite number of positions, but it is certainly possible in *theory*. Similarly, from *any* region of space an infinite number of "views" are, theoretically, obtainable.

Now my objection is that if Russell supposes that "views" more or less like those which can be seen or photographed from a given region of physical space already exist in that region, he must suppose that an infinite number of views exist in a finite region of physical space. And the proposition that an infinite number of views each of a finite size *do* exist in a finite region of physical space is, I submit, false.

It will, perhaps, be suggested that Russell can evade this objection provided he holds that a "view" has only two spatial dimensions. If he supposes this, it may be said, he avoids this pitfall without in any way abandoning his main position. But if he *should* hold (what he in fact gives no evidence of holding) that "views" have only two spatial dimensions, I cannot at all see how he can suppose, as he clearly wants to suppose, that "views" move from one point in physical space to another, or even that they are *in* physical space. For since physical space itself has three spatial dimensions, an entity obviously must have three spatial dimensions in order to have a position in physical space.

Again, it may be suggested that Russell can avoid the difficulty by having recourse to the Multiple Inherence Theory or to the Multiple Relation Theory. If he were to say, for example, that a visual particular inheres in a certain region of space *from* a certain region, the contradiction, it may be argued, disappears. But are these theories (to which Russell himself does not refer) valid? This is a point which, unfortunately, I cannot stop to consider. I must content myself with referring the reader to Broad's criticism of these theories in *The Mind and Its Place in Nature*.³²

³² Pp. 161 ff.

(7) There is but one other objection to Russell's attempt to neutralize matter which I should like to raise.³³ I should like to point out, finally, that even if one disregards all of the objections to Russell's position which have been pointed out in the preceding pages, the fact remains that Russell's doctrine is, at bottom, not a form of "neutral monism" at all but, rather, a form of "psychophysical dualism"—a form of "psychophysical dualism", that is, according to the definition of those terms given in the introduction to this examination. This is clear even in his attempt to neutralize matter: it will become still more clear when I turn to his attempt to neutralize mind.³⁴

One has but to contrast the properties which Russell supposes sensed sensations to have with the properties which he supposes unsensed sensations—in Professor Strong's terminology, "sub-sensations"—to have. For one thing, a sensed sensation—say, the visual sensation I have when I look at the table on which I am now writing—is, according to Russell, existentially and qualitatively dependent upon the perceiving organism. *It* does not exist, according to Russell, though something to some extent analogous to it exists,³⁵ when the perceptual act ceases. This view is clearly indicated in the following passage: "Just as a photographic plate receives a different impression of a cluster of stars when a telescope is part of the intervening medium, so a brain receives a different impression when an eye and an optic nerve are part of the intervening medium".³⁶ Russell lays much stress even upon the rôle which past experience plays in sensation. He writes: "*Prima facie*, everything is sensation that comes to us through the senses: the sights we see, the sounds we hear, the smells we smell, and so on; also such things as headache or the feeling of muscular strain. But in actual fact so much interpretation, so much of habitual correlation, is mixed with all such experiences, that the core of pure sensation is only to be extracted by careful investiga-

³³ For other objections which may be urged against Russell's present position, see sections VII and VIII of Chapter II.

³⁴ It will be pointed out that, e.g., images remain definitely "unneutralized".

³⁵ How analogous he holds it to be is, as I have pointed out, very uncertain.

³⁶ P. 104. See also p. 106 and pp. 134-5 and *Physics and Perception, Mind*, 1922, p. 484. This is clearly the interpretation which Broad places upon Russell's theory in his *Scientific Thought*, pp. 531-2.

tion.”³⁷ But an unsensed sensation—say, the sensation which Russell supposes to be situated in the unoccupied region of space a foot to the right of me—is for him obviously *not* existentially and qualitatively dependent upon any perceiving organism. For there is not, in fact, as he would admit, any perceiving organism *at* that place.

Again, and to go no further, a sensed sensation is, for Russell, “private”. It is a datum, that is to say, for the perceiver alone. This point is brought out, for example, in one of the passages already quoted: “When different people see what they call the same table, they see things which are not exactly the same, owing to differences of point of view, but which are sufficiently alike to be described in the same words, so long as no great accuracy or minuteness is sought.”³⁸ And again: “Two people looking at the same table do not get the same sensation, because of perspective and the way the light falls. They get only correlated sensations. Two people listening to the same sound do not hear exactly the same thing, because one is nearer to the source of the sound than the other, one has better hearing than the other, and so on.”³⁹ But an unsensed sensation is, for Russell, *not* a datum for the perceiver alone. For it is a datum for *no* one.

But if what I have just been asserting is true, it necessarily follows that Russell’s position is, according to the definition set forth in the introduction, a form of “psychophysical dualism”—not a form of “neutral monism”.

Before proceeding to an analysis of Russell’s attempt to neutralize mind, let us pause a moment to summarize the valid objections to Russell’s theory which have been pointed out so far. (1) It was asserted that in setting forth a definition of a physical object, Russell at first glance usually *seems* to be laying down the existential proposition that such physical objects, and only such physical objects, exist as are defined. If one places such an interpretation upon Russell’s statements, however, his theory is at the outset seen to be wholly unsatisfactory. It seems more reasonable to suppose that Russell does not really wish to assert what he at first seems to be asserting—that he has expressed himself very carelessly. It was subsequently pointed out, however, that there are cogent objections to Russell’s theory even if one interprets it in this more

³⁷ P. 139.

³⁸ P. 99.

³⁹ P. 119.

lenient fashion. (2) Some of these objection were mentioned in considering an objection urged by Professor Strong. Four different theories of the nature of visual sub-sensations were here distinguished and it was urged here that three (and later that the fourth) of them face serious difficulties. If Russell subscribes to the second of the theories here distinguished, he is open to the objection that he has ignored the fact that a well-defined perspective is impossible without the aid of a lens. If he subscribes either to the third or fourth theories, he is open to the objection that he has failed to interpret the external world in terms of sensations alone. It was not mentioned here, though it is obvious, that in giving four different accounts of the nature of visual sub-sensations, Russell is guilty of serious inconsistencies. (3) It was pointed out next that Russell is open to the charge of inconsistency raised by Professor Lovejoy. For though Russell denies that one has the right to employ "the notion of cause" to infer an imperceptible central object, he yet readily makes use of that notion in inferring an imperceptible intervening medium. (4) Russell's theory is possibly, though not certainly, it was held, subject to the criticisms raised by Professor Lovejoy (and Professor Strong) which are based upon the assumption that Russell's "physical objects" are "hollow". (5) If Russell maintains that visual sub-sensations are "views", either confused or well-defined, he is committed to the false proposition that an infinite number of entities each of a finite size can be fitted into a finite region of space. (6) Russell's position is, at bottom, not a form of "neutral monism", but a form of "psychophysical dualism".

SUMMARY OF REMAINING SECTIONS OF CHAPTER III

In the first part of section III, I endeavor to present an exposition of Russell's attempt to neutralize mind. Russell's thesis, it is explained, is that the sole constituents of mind are sensations and images and that images are to be distinguished from sensations solely by the fact that their causes (and effects) are different.

In support of the first part of this thesis, Russell seeks to show that some of the entities which have been called "mental" do not exist and that those which do exist are analyzable into sensations and images. Consciousness (as a "psychical stuff"), the "subject", and the "act" are the entities falling in the first of these

classes. It is asserted that experience does not reveal the existence of such entities and that their existence is not deducible from anything that is observable. The entities falling in the second class are thought, introspection, perception, imagination, anticipation, memory, desire, will, feeling, and emotion. All these are held to be built up out of sensations and images. Memory, for example, is for Russell constituted by the presence of an image and the "feeling of belief" with respect to that image which may be expressed in the words "this happened". Anticipation is like memory except that the "feeling of belief" attaching to the image is such as may be expressed in the words "this will happen". In imagination images are present but unaccompanied by any "feeling of belief." Thus, Russell concludes, none of these involves any entities other than sensations and images.

In support of the second part of his thesis, namely, that images differ from sensations only in so far as they obey different causal laws, Russell points out that the other criteria for distinguishing images from sensations fail. It cannot be said that images are to be distinguished from sensations by their lesser vividness, as some persons have maintained, since, as a matter of fact, some images are more vivid than some sensations. Nor, again, can it be said that images are to be distinguished from sensations by the absence of our belief in their "physical reality", since some images are believed to be just as "real" as some sensations. It is only by the fact that the causes (and effects) of images are different from those of sensations that images and sensations are to be distinguished. "In the causation of sensations, the stimulation of nerves carrying an effect into the brain, usually from the surface of the body, plays an essential part". This is not the case, however, in the causation of images.

In the latter part of section III, I turn to a critical examination of Russell's attempt to neutralize mind. I endeavor to point out first that Russell has not succeeded in showing that mind *is* composed solely of sensations and images. For one thing, he has not shown that the "subject" does not exist. He discards the "subject" merely by stating that it is not observable and that it is not deducible from that which is observable. But since so many philosophers and psychologists have held that the "subject" *is* observable, something more than a brief and dogmatic statement of Russell's position is, I think, required. For another thing, he has

not shown that "feelings of belief" are composed of merely sensations and images. In fact, he does not *attempt* to show this. Yet "feelings of belief", it is clear, play a most important part in his analysis of mind. It is a difference between one kind of "feeling of belief" and another which distinguishes memory from anticipation. It is a difference between the presence and absence of a "feeling of belief" which distinguishes memory and anticipation from imagination. Certainly, until "feelings of belief" have been shown to be analyzable into sensations and images, Russell's claim to have interpreted mind in terms of only sensations and images cannot be granted.

I endeavor to point out next that even if Russell had succeeded in interpreting mind in terms of sensations and images alone, the fact would remain that his theory is, according to our definition of the terms, a form of "psychophysical dualism". I am not here referring to the dualism, mentioned in the preceding section, between sub-sensations and sensed sensations. I am referring now to still another dualism, to the dualism between sub-sensations, on the one hand, and images and "bodily feelings", on the other. Even if we should ignore the first mentioned dualism, this dualism remains. That there *is* another dualism in Russell's position becomes clear when we realize that whereas sub-sensations are *not* "private", images and "bodily feelings" *are* "private", that whereas sub-sensations are *not* qualitatively and existentially dependent upon a percipient organism, images and "bodily feelings" *are* qualitatively and existentially dependent upon a percipient organism, and that whereas sub-sensations *obey* the laws of physics, images and "bodily feelings" *do not* obey the laws of physics.

In the final pages of section III, certain minor objections are raised against Russell's psychology. It is pointed out, for example, that his analysis of discomfort is definitely faulty. Defining discomfort solely in terms of behavior, he gives a definition which at best is acceptable only to behaviorists. But since his definition probably does not apply to *certain* types of activity which behaviorists regard as discomfort, it is doubtful if it would be acceptable even to that school of psychologists.

In the concluding section of the chapter (section IV), the more important objections to Russell's third stage position are summarized.

RUSSELL'S BOOKS RELEVANT TO THE PRESENT SUBJECT

- The Foundations of Geometry (1897).
A Critical Exposition of the Philosophy of Leibnitz (1900).
The Principles of Mathematics (1903).
Principia Mathematica (with Dr. Whitehead) (Vol. I, 1910; Vol. II, 1912; Vol. III, 1913).
Philosophical Essays (1910).
The Problems of Philosophy (1912).
Our Knowledge of the External World as a Field for Scientific Method in Philosophy (1914).
Mysticism and Logic (1918).
An Introduction to Mathematical Philosophy (1918).
The Analysis of Mind (1921).
The A B C of Atoms (1923).
The A B C of Relativity (1925).
The Analysis of Matter (1927).
Philosophy (1927).

RUSSELL'S OTHER WRITINGS RELEVANT TO THE PRESENT SUBJECT ¹

- A Review of "Die Gesetze und Elemente des wissenschaftlichen Denkens", von Dr. G. Heymans (*Mind*, p. 245, 1895).
The Logic of Geometry (*Mind*, p. 1, 1896) (Summary in the *Phil. Rev.*, 1896).
A Review of "Essai critique sur l'Hypothèse des Atomes dans la Science contemporaine", par A. Hannequin (*Mind*, p. 410, 1896).
A Review of "De l'Infini Mathématique", par L. Couturat (*Mind*, p. 112, 1897).
On the Relations of Number and Quantity (*Mind*, p. 326, 1897) (Read before the *Aris. Soc.*) (Summary in *Phil. Rev.*, 1898).
A Review of "Theoretical Mechanics", by A. E. H. Love (*Mind*, p. 404, 1898).
A Review of "Über die Bedeutung des Weberschen Gesetzes", von A. Meinong (*Mind*, p. 251, 1899).
On the Nature of Order (*Mind*, p. 30, 1901).
Is Position in Time and Space Absolute or Relative? (*Mind*, p. 293, 1901) (Summary in *Phil. Rev.*, 1902).
A Review of "Kant's Cosmogony", edited and trans. by W. Hastie. (*Mind*, p. 405, 1901).
Mathematics and the Metaphysicians (Mysticism and Logic, 1918) (Written 1901) (Published in the *Int. Monthly*).

¹ The journals articles included in this list are confined to those appearing in the more important English and American journals.

- A Review of "l'Imagination et les mathématiques selon Descartes" par P. Boutroux (*Mind*, p. 108, 1902).
- The Study of Mathematics (Mysticism and Logic, 1918) (Written 1902) (Published 1907; 1910).
- A Free Man's Worship (Mysticism and Logic, 1918) (Written 1902) (Published, 1903 and 1910).
- Recent Work on the Philosophy of Leibnitz (*Mind*, p. 177, 1903).
- The Axiom of Infinity (*Hibbert Journal*, p. 809, 1903-4).
- Meinong's Theory of Complexes and Assumptions (*Mind*, pp. 204, 336, 509, 1904).
- The Existential Import of Propositions (*Mind*, p. 398, 1905).
- A Review of "Science and Hypothesis", by Poincaré (*Mind*, p. 412, 1905).
- On Denoting (*Mind*, p. 479, 1905) (Summary in *Phil. Rev.*, 1906).
- A Review of "Untersuchungen zur Gegenstandstheorie und Psychologie", von A. Meinong (*Mind*, p. 530, 1905).
- A Reply to Poincaré's letter (*Mind*, p. 143, 1906).
- A Review of "Symbolic Logic and Its Applications", by H. Maccoll (*Mind*, p. 255, 1906).
- A Review of "Ueber die Erfahrungsgrundlagen unseres Wissens", von A. Meinong (*Mind*, p. 412, 1906).
- The Nature of Truth (*Aris. Proc.*, 1906-7) (Reprinted in part as "The Monistic Theory of Truth" in the *Phil. Essays*, 1910).
- A Review of "Über die Stellung der Gegendstandstheorie im System der Wissenschaften", von A. Meinong (*Mind*, p. 436, 1907).
- Mr. Haldane on Infinity (*Mind*, p. 238, 1908).
- "If" and "Imply", a Reply to Mr. Maccoll (*Mind*, p. 300, 1908).
- Trans-Atlantic Truth (*Albany Review*, Jan., 1908) (Reprinted in *Phil. Essays*, 1910, pp. 127-49, as "William James's Conception of Truth").
- Determinism and Morals (*Hibbert Journal*, p. 113, 1908-09).
- A Review of "Essays in Honor of William James", by his Colleagues (*Hibbert Journal*, p. 205, 1908-09).
- Pragmatism (*Phil. Essays*, 1910) (Reprinted from the *Albany Review*, April, 1909).
- Some Explanations in Reply to Mr. Bradley (*Mind*, p. 373, 1910).
- On the Nature of Truth and Falsehood (*Phil. Essays*, 1910).
- Knowledge by Acquaintance and Knowledge by Description (*Aris. Proc.*, p. 108, 1910-11).
- The Basis of Realism (*Journal of Phil.*, p. 158, 1911).
- The Philosophical Importance of Mathematical Logic (*Review de Met.*, 1911) (Summaries in *Philosophical Reviews* of 1911, 1914: *Monist*, 1913).
- The Philosophy of Bergson (*Monist*, p. 321, 1912) (Summary in *Phil. Rev.*, 1913).
- On the Notion of Cause (*Aris. Proc.*, p. 1, 1912-13) (Reprinted in *Mysticism and Logic*, 1918).

- The Essence of Religion (*Hibbert Journal*, p. 46, 1912-13).
- The Place of Science in a Liberal Education (*The New Statesman*, 1913) (Mysticism and Logic, 1918).
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V I T A

I was born in Baltimore, Maryland, on November 21, 1905. My education has, with the exception of one year at Cambridge University, been obtained solely from the institutions of that city. After a year of private coaching and two years in public school, I entered, in 1915, the fourth grade of the Park School where, in 1922, I received the high school diploma. As I look back, it seems to me that it was not until a year or so before my high school graduation that my interests in athletics were supplanted by intellectual ones. It was then that I began keeping a "Diary of Reflections", and it was about then, largely as a result of my brother's intense interest in philosophy, that I began—disturbed by the fact that though the language was apparently familiar I could yet not understand a word of it—reading translations of Kant and Schopenhauer. In the fall of 1922, I entered Johns Hopkins University, choosing philosophy as my major subject, and psychology as my minor. Then in 1925-26, having received my A. B. degree, I had my year away. Perhaps even more than the English landscape and the stimulating lectures of Moore, Broad, Sorley and Hicks, it was the constant companionship of Dr. V. J. McGill which made my stay at Cambridge so enjoyable. In the fall of 1926, I returned to Johns Hopkins to complete my studies in philosophy under Professor Lovejoy and Associate Professor Boas, to both of whom I am inestimably indebted. During my last year at Johns Hopkins University, I was permitted to give an evening course in the College for Teachers. At present (January, 1929) I am an instructor in philosophy at the University of Washington.

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